



black eyes. Mr. Fisk said there are also three white specimens of this animal in the Capetown Museum.

A letter was read from Dr. E. C. Stirling, of Adelaide, containing a copy of his description of a new Australian Mammal (which had already appeared in nearly the same form in 'Nature,' vol. xxxviii. p. 583), as read before the Royal Society of South Australia, Sept. 4th, 1888, and published in that Society's 'Transactions.' Dr. Stirling was now engaged in finishing a complete description of this very peculiar and interesting burrowing animal, which somewhat resembled a Cape Mole (*Chrysochloris*) in general external appearance, and expected to be able to communicate it to this Society when ready.

Mr. Seebohm exhibited the skin of a male example of *Phasianus chrysomelas* which had been purchased in the flesh (along with a female) in Leadenhall Market, where several others were also sold, and was stated to have been sent over in a frozen state from the Trans-Caspian provinces of Russia.

The following papers were read:—

1. Description of a new Genus of Muridæ allied to *Hydromys*.

By OLDFIELD THOMAS, Natural History Museum.

[Received March 26, 1889.]

(Plate XXIX.)

One of the most singular and at the same time most isolated genera of Muridæ is *Hydromys*, of which the only species is the well-known Australian Water-rat. Alone of the family, and, with one exception¹, alone of the Rodentia, this remarkable animal has only two molars on each side of each jaw, and the structure of these molars is at the same time quite different from that found in any other known Rat. Externally *Hydromys* has taken on characters suitable for a purely aquatic life, standing, so far as regards external specialization for swimming, in an intermediate position between *Potamogale* and *Nectomys*², less specialized than the former and more so than the latter.

The skull of *Hydromys* differs from other Muridæ in many characters, and especially in the structure of the infraorbital foramen, which is hardly murine in the ordinary sense at all, as it is of about the same breadth above and below, and its external wall has not the anteriorly projecting plate found in the great majority of the Rats and Mice (see Plate XXIX. fig. 7).

Altogether *Hydromys* has occupied a peculiarly isolated position in the family, no other genus showing any approach towards it, and there is therefore a proportionate amount of interest in the discovery of a new form allied to it. The proof of alliance lies wholly in the

¹ *Heterocephalus phillipsi*, see P. Z. S. 1885, p. 847.

² Peters, Abh. Ak. Berl. 1860, p. 152. Regarded as a subgenus of *Holochilus*, Thomas, P. Z. S. 1882, p. 101.

dentition, as both the cranial and external characters of the new genus are those of ordinary Muridæ. The new form, by its structure, is obviously a land- and not a water-animal, and on this account, in contradistinction to its aquatic ally *Hydromys*, I propose to call it

*XEROMYS*¹, g. n.

External form murine. Tip of muzzle as in *Mus*, not as in *Hydromys*. Toes unwebbed. Tail scaly, very finely haired. Skull as in *Mus*, except that the supraorbital edges are rounded. Teeth both in number and structure as in *Hydromys*.

XEROMYS MYOIDES, sp. n.

External appearance exactly like that of an ordinary *Mus*. Size about twice that of *Mus musculus*. Ears short (as compared to most members of *Mus*), rounded, laid forward they only reach to within about 3 or 4 millim. of the posterior canthus of the eye; their anterior edge without the little supplementary flap found in *Hydromys*. Fur very short, uniform in length. Whiskers as in *Mus*, fewer and slenderer than in *Hydromys*. General colour above dark slaty grey, below white, the line of demarcation not sharply defined. Ears grey. Arms and legs like back; hands and feet very thinly haired, almost naked terminally, white. Palms and soles (Plate XXIX. fig. 9) naked, the former with five and the latter with six pads, the last hind pad elongate. Pollex with a short broad nail, all the other digits with claws; fifth digit on each foot, without claw, reaching just to the base of the fourth. Tail about the length of the body without the head, slender, scaly, the scales rather irregularly disposed, very small, averaging about 20 to 22 to the centimetre, the whole tail very thinly covered with fine white hairs; its substance pale flesh-colour above and below. Palate-ridges exactly as in *Hydromys*, *i. e.* three premental, the third notched in its centre, three interrupted interdental ridges, and one posterior uninterrupted (see Plate XXIX. fig. 5). Mammæ 0—2=4, as in *Hydromys*.

Skull (Plate XXIX. figs. 1-4), in its general form, not unlike that of a small Rat, say of the common N. Australian *Uromys cervinipes*, Gould. Nasals reaching much further forwards than in *Hydromys*, but not so far as in *Mus*, just falling short of the level of the front of the premaxillæ. Interorbital region smoothly convex, the supra-orbital edges rounded, not ridged or beaded. Interparietal very broad transversely, and narrow antero-posteriorly. Infraorbital foramen typically murine in character, the outer wall broad and slightly projecting forwards (fig. 6). Anterior palatine foramina short, not equalling the combined length of the two upper molars. Bullæ small, inflated, transparent.

Teeth.—Upper incisors long, less curved than in *Mus*, and recalling in their general appearance those of the Voles. Their front surfaces smooth, ungrooved, orange in colour. Molars (Plate XXIX. fig. 10) as in *Hydromys chrysogaster*, except that the lateral ends of the lobes are shorter and rounder, and that the inner wall of the second

¹ ξηρὸς, dry; ἡ ξηρὰ, the dry land.

lobe of \underline{m}^1 is slightly folded inwards at its centre. Lower incisors very long, their front surface white. Lower molars (fig. 4) as in *Hydromys*, but the walls of the large anterior lobe of \underline{m}^1 are notched, so as to give a rather more cuspidate character to the tooth.

Dimensions of the type, an adult female in spirit:—

Head and body 111 millim.; tail 85; hind foot 23·2; ear 10 × 10·5; head 33; forearm and hand 29; heel to front of last foot-pad 10·8; length of last foot-pad 2·6.

Skull.—Basal length 26; greatest breadth 15; nasals, length 8·9, breadth 3·3; interorbital breadth 5·0; interparietal, length 3·1, breadth 9·2; infraorbital foramen, length of outer wall 2·8, distance from outer corner of one foramen to that of the other 7·6; palate, length 16, breadth outside \underline{m}^1 5·5, inside \underline{m}^1 2·1; diastema 9; length of palatine foramina 3·9; length of \underline{m}^1 2·8, of \underline{m}^2 1·5; of the two together *in situ* 4·1.

Hab. Port Mackay, Queensland (Godeffroy Museum).

The above given being the combination of characters presented by the new form, we may turn to the interesting questions as to the phylogeny of *Hydromys* naturally raised by its discovery. Had the origin of *Hydromys* been formulated apart from *Xeromys*, it would most assuredly have been somewhat as follows:—The ancestor of *Hydromys* would have been said to have been an ordinary Murine with three molars, which took to an aquatic life as *Mus fuscipes*, *Microtus amphibius*, and others have done, and that then, afterwards, as the external characters became modified for swimming, and as some water-loving substance was more and more exclusively used as food, the teeth became modified in the remarkable manner characteristic of the genus. This natural speculation, apparently quite sound in itself, is abruptly overthrown by the discovery of *Xeromys*; for that animal, without having developed the aquatic habits and characters of *Hydromys*, has already attained to the same specialized dental peculiarities. That *Xeromys* is the almost unmodified descendant of one of the more recent direct ancestors of *Hydromys* is almost unquestionable, as it does not possess a single peculiar character of its own, every one of its points being present either in its relatives the true Rats and Mice, or in what we may fairly call its offspring, *Hydromys*.

The true course of the evolution of *Hydromys* appears therefore to have been this. There would have been living in Australia, perhaps comparatively recently, one or more species of a terrestrial genus possessing a Murine exterior and skull, and Hydromyine dentition, palate-ridges, and mammæ (*i. e.* *Xeromys* as now defined). Some members of this genus taking to an aquatic life, such of their characters as had any direct relation to the power of swimming would have become modified, these being size, form of head, and therefore of skull, structure of muzzle (for cleaving the water and keeping it out of the mouth), great whisker development, closeness and glossiness of fur, extra folds on ear-conch, webbing of toes, suppression of sole-pads, and hairiness and increase in size and strength of tail. On the other hand, the number and structure of the teeth, and even such slight and presumably easily modified

characters as the form of the palate-ridges and the number of the *manimæ*, have remained quite unaffected during all the changes that the rest of the animal has undergone.

A parallel case, but one in which the differences between the two are by no means so strongly marked, is that of the rare Floridan *Neofiber*¹, in its relationship to the common and widely-spread North-American *Fiber*.

But the question next arises as to which of the Murines *Xeromys* itself is most allied; but here the very high specialization of its teeth presents the same difficulty as in the case of *Hydromys*, so that in this respect the discovery of *Xeromys* hardly helps us at all. The slight differences between the teeth of the two genera prove that the almost continuous walls round the lobes of the molars of *Hydromys* were formerly cusps, as in other Murines; but although this leads directly towards *Mus*, it leads equally directly towards nearly all the other members of the family. In fact one cannot say with absolute certainty that the teeth are more nearly allied to those of *Mus* than to those of *Uromys*, *Hapalotis*, *Gerbillus*, or even *Cricetus* itself; and we must therefore be content to wait in the hope that more of the missing links, either fossil or recent, may yet turn up, and that then a more enlightened study of larger material may tend to elucidate this most interesting question. In any case we must be thankful that by the preservation of the apparently common-looking little *Xeromys myoides*, so important an advance in our knowledge of the ancestry of *Hydromys* has been made practicable.

EXPLANATION OF PLATE XXIX.

- Figs. 1-4. Skull of *Xeromys myoides*.
 5. Palate-ridges of ditto.
 6. Anterior zygoma-root of ditto.
 7. Anterior zygoma-root of *Hydromys chrysogaster*.
 8, 9. Ear and right hind foot of *Xeromys myoides*.
 10-12. Left upper and lower molars of ditto.

2. On a new Tree Trap-door Spider from Brazil.

By the Rev. O. P. CAMBRIDGE, M.A., F.R.S., C.M.Z.S., &c.

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Class ARACHNIDA.

Order ARANEIDEA.

Fam. THERAPHOSIDÆ.

Gen. nov. DENDRICON.

DENDRICON RASTRATUM, sp. n.

This genus is evidently nearly allied to *Moggridgea*, Cambr., but the presence on the palces of a strong rake-like group of spines near the base of the fang, and a difference in the form of the maxillæ and labium, lead me to conclude that it is certainly distinct from that

¹ See True, P. U. S. Nat. Mus. vii. p. 170 (1884).